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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,770	12/09/2003	Roger E. Ahrnkiel	38190/270312	4264

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EXAMINER	
ADDISU, SARA	
ART UNIT	**PAPER NUMBER**
3722	

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/731,770	AHRNKIEL ET AL.	
	Examiner	Art Unit	
	Sara Addisu	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawing objected is withdrawn due to the explanation given in the amendment filed 10/27/05.

Claim Rejections - 35 USC § 112

The rejection of claim 11, under the second paragraph of 35 U.S.C. 112 is withdrawn due to the amendment filed 10/27/05.

Response to Arguments

Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Van De Bogart (USP 4,480,949).

VAN DE BOGART teaches a router for cutting material having a substantially cylindrical shaft member having a shank portion (3) and a cutting portion having a plurality of cutting teeth. VAN DE BOGART also teaches a right hand (first helix) having two cutting edges (1: first cutting edge) intersecting a left hand (second helix) having plurality of cutting edges (2: second cutting edge) ('949, figures 1 & 3 and Col. 1, lines 58-61). VAN DE BOGART teaches, the first cutting teeth (having cutting edge 1) defining a first cutting clearance and a first non-cutting clearance while the second cutting edge teeth (having cutting edge 2) defines a second cutting clearance and a second non-cutting clearance ('949, Col. 2, lines 7-23). Furthermore, VAN DE BOGART teaches each cutting tooth including a flat (5, 8) defined by the first and second cutting and non-cutting edges, respectively. VAN DE BOGART teaches in figures 2 and 3, each flat extending along each cutting edge in a circular land on an outside diameter of the tool.

2. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Van De Bogart (USP 4,480,949).

VAN DE BOGART teaches a router for cutting material having a substantially cylindrical shaft member having a shank portion (3) and a cutting portion having a plurality of cutting teeth. VAN DE BOGART also teaches a left hand (first helix) having plurality of cutting edges (2: second cutting edge) intersecting a right hand (second helix) having two cutting edges (1: first cutting edge) (i.e. there are more teeth along the first helix than the second as claimed in claim 11) ('949, figures 1 & 3 and Col. 1, lines

58-61) (Note, the left and right hand helix are reversed such that they read on claims 1 and 11).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van De Bogart (USP 4,480,949) in view of Kopras, (USP 5,143,490).

VAN DE BOGART teaches a routine tool, as set forth in the above (102b) rejection.

However, VAN DE BOGART is silent about a motor being used to drive the tool.

Kopras teaches a motor driving the rotation of a rotary tool about an axis ('490, Col. 3, lines 48-51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize a motor to drive the tool of VAN DE BOGART's inventions, as taught by Kopras because Kopras teaches that it is well known in the art

to use a motor to drive the rotation of a rotary tool about an axis ('490, Col. 3, lines 48-51).

4. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van De Bogart (USP 4,480,949) in view of Kopras, (USP 5,143,490).

The modified device of VAN DE BOGART teaches a router for cutting material having a substantially cylindrical shaft member having a shank portion (3) and a cutting portion having a plurality of cutting teeth. VAN DE BOGART also teaches a left hand (first helix) having plurality of cutting edges (2: second cutting edge) intersecting a right hand (second helix) having two cutting edges (1: first cutting edge) (i.e. there are more teeth along the first helix than the second as claimed in claim 11) ('949, figures 1 & 3 and Col. 1, lines 58-61) (Note, the left and right hand helix are reversed such that they read on claims 13 and 23).

5. Claims 5-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van De Bogart (USP 4,480,949).

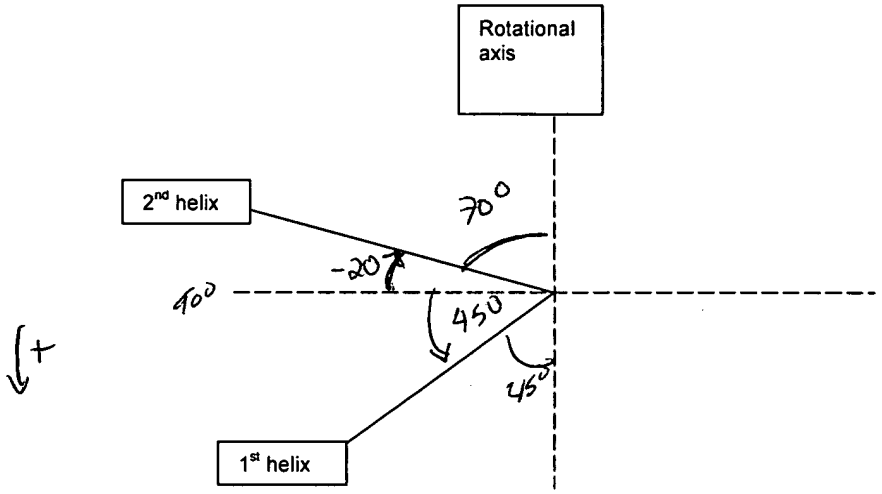
Regarding claims 5 and 6, VAN DE BOGART teaches a router having a first cutting edge and a second cutting edge), as set forth in the above rejection. Furthermore, VAN DE BOGART teaches the firs cutting and non cutting edges extending radially outward to define a length of the flat (5) and the second cutting and non-cutting edges extending radially outward to define the opposing edge of the flat (5) ('949, figures 2 and 3). Flat (5) that has a length of .25 inches wide ('949, Col. 2, lines 11-12). Examiner interprets length 0.25 inch of the first cutting tooth, as meeting the "approximately .017-.020 inches" limitation of claim 6.

Regarding claim 7, VAN DE BOGART teaches the first helix being 45 degrees while the second helix is 70 degrees. Using a reference plane that extends perpendicular to a longitudinal axis, first helix is at 45 degrees while the second helix is at –20 degrees (+ direction being counterclockwise) (see figure below). However VAN DE BOGART fails to teach the first helix having an angle of "about 30 degrees" while the second helix has an angle of "about –20 degrees". It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the helix angle depending on the shape and patter of the final cut desired. Furthermore, Applicant has not disclosed that first helix having an angle of "about 30 degrees" while the second helix has an angle of "about –20 degrees" provides an advantage, is used for a particular purpose, or solves a stated problem. Applicant does not provide any criticality or unexpected results for the angles claimed in claim 7 (Specification, page 3, lines 26-28 and page 7, line 33).

Regarding claim 8, VAN DE BOGART teaches the second cutting clearance (10) of 10 degrees (therefore meets the limitation of 10-12 degrees) ('949, Col. 2, lines 22-23). VAN DE BOGART if silent about the value of the first cutting edge clearance. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select the clearance angle of the first cutting edge depending on the material being cut and how much clearance is needed to remove the debris/cut material. Furthermore, Applicant has not disclosed that first cutting edge clearance angle of "approximately 10 degrees" provides an advantage, is used for a particular purpose, or solves a stated problem. Applicant does not provide any criticality or unexpected results for the "approximately 10 degrees" claimed in claim 8 (Specification, page 10, lines 9-11 and page 3, lines 28-29).

Regarding claims 9 and 12, VAN DE BOGART teaches first non-cutting clearance (4) of 10 degrees ('949, Col. 2, line 12). VAN DE BOGART also teaches second non-cutting clearance of 20 degrees ('949, Col. 2, lines 20-21). VAN DE BOGART also teaches lands (5 and 8) having a width of 0.020 inch and 0.030 inch, respectively. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary second non-cutting clearance depending on the width of the flat desired for the machining, i.e. the flat, which may also vary in width, is used to strengthen the cutting edge and prevent it from breaking. For example if cutting material such as clay, the cutting edge does not require as much strength as opposed to when cutting a much harder material such as titanium. Furthermore, Applicant has not disclosed that second non-cutting clearance of "approximately 10-12 degrees" or a

land width of .001 inch provides an advantage, is used for a particular purpose, or solves a stated problem. Applicant does not provide any criticality or unexpected results for the "approximately 10-12 degrees" claimed in claim 9 (Specification, page 10, lines 9-11 and page 3, lines 28-30), or land width of .001 inch claimed in claim 12 (Specification, page 8, lines 31-32).



6. Claims 17-21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van De Bogart (USP 4,480,949) in view of Kopras, (USP 5,143,490).

Regarding claims 17 and 18, the modified device of VAN DE BOGART teaches a router having a first cutting edge and a second cutting edge) driven to rotate by a motor, as set forth in the above rejection of claim 13. Furthermore, VAN DE BOGART teaches the firs cutting and non cutting edges extending radially outward to define a length of the flat (5) and the second cutting and non-cutting edges extending radially outward to define the opposing edge of the flat (5) ('949, figures 2 and 3). Flat (5) that has a length of .25 inches wide ('949, Col. 2, lines 11-12). Examiner interprets length 0.25 inch of the first cutting tooth, as meeting the "approximately .017-.020 inches" limitation of claim 18.

Regarding claim 19, VAN DE BOGART teaches the first helix being 45 degrees while the second helix is 70 degrees. Using a reference plane that extends perpendicular to a longitudinal axis, first helix is at 45 degrees while the second helix is at –20 degrees (+ direction being counterclockwise) (see figure below). However VAN DE BOGART fails to teach the first helix having an angle of "about 30 degrees" while the second helix has an angle of "about –20 degrees". It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the helix angle depending on the shape and patter of the final cut desired. Furthermore, Applicant has not disclosed that first helix having an angle of "about 30 degrees" while the second helix has an angle of "about –20 degrees" provides an advantage, is used for a particular purpose, or solves a stated problem. Applicant does not provide any criticality or unexpected results for the angles claimed in claim 19 (Specification, page 3, lines 26-28 and page 7, line 33).

Regarding claims 20, VAN DE BOGART teaches the second cutting clearance (10) of 10 degrees (therefore meets the limitation of 10-12 degrees) ('949, Col. 2, lines 22-23). VAN DE BOGART if silent about the value of the first cutting edge clearance. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select the clearance angle of the first cutting edge depending on the material being cut and how much clearance is needed to remove the debris/cut material. Furthermore, Applicant has not disclosed that first cutting edge clearance angle of "approximately 10 degrees" provides an advantage, is used for a particular purpose, or solves a stated problem. Applicant does not provide any criticality or unexpected results for the "approximately 10 degrees" claimed in claim 20 (Specification, page 10, lines 9-11 and page 3, lines 28-29).

Regarding claim 21 and 24 teaches first non-cutting clearance (4) of 10 degrees ('949, Col. 2, line 12). VAN DE BOGART also teaches second non-cutting clearance of 20 degrees ('949, Col. 2, lines 20-21). VAN DE BOGART also teaches lands (5 and 8) having a width of 0.020 inch and 0.030 inch, respectively. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary second non-cutting clearance depending on the width of the flat desired for the machining, i.e. the flat, which may also vary in width, is used to strengthen the cutting edge and prevent it from breaking. For example if cutting material such as clay, the cutting edge does not require as much strength as opposed to when cutting a much harder material such as titanium. Furthermore, Applicant has not disclosed that second non-cutting clearance of "approximately 10-12 degrees" or a land width of .001 inch provides an

advantage, is used for a particular purpose, or solves a stated problem. Applicant does not provide any criticality or unexpected results for the "approximately 10-12 degrees" claimed in claim 21 (Specification, page 10, lines 9-11 and page 3, lines 28-30), or land width of .001 inch claimed in claim 24 (Specification, page 8, lines 31-32).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van De Bogart (USP 4,480,949), in view of MacArthur (U.S. Pub. No. 2005/0105973).

VAN DE BOGART teaches the routing tool being made of solid carbide material ('949, Col. 2, lines 7-8).

However, VAN DE BOGART fails to teach the routing tool comprising H-10-F solid carbide.

MacArthur teaches many rotary cutting tools being fabricated from various commercial grades of solid carbide and carbide alloy (2005/0105973, Page 2, paragraph 34, lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify VAN DE BOGART's invention such that the tool is fabricated from various commercial grades of solid carbide (which meets the limitation H-10-F solid carbide) as taught by MacArthur for the purpose of machining

parts formed from softer aluminum to harder stainless steels and related alloys (2005/0105973, Page 2, paragraph 34, lines 1-4).

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van De Bogart (USP 4,480,949) in view of Kopras, (USP 5,143,490) and further in view of MacArthur (U.S. Pub. No. 2005/0105973).

The modified device of VAN DE BOGART teaches a routing tool comprising H-10-F solid carbide ('949, Col. 2, lines 7-8).

However, the modified device of VAN DE BOGART fails to teach the routing tool comprising H-10-F solid carbide.

MacArthur teaches many rotary cutting tools being fabricated from various commercial grades of solid carbide and carbide alloy (2005/0105973, Page 2, paragraph 34, lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify VAN DE BOGART's invention such that the tool is fabricated from various commercial grades of solid carbide (which meets the limitation H-10-F solid carbide) as taught by MacArthur for the purpose of machining parts formed from softer aluminum to harder stainless steels and related alloys (2005/0105973, Page 2, paragraph 34, lines 1-4).

9. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van De Bogart (USP 4,480,949) in view of Babbitt (USP 2,923,053)

VAN DE BOGART teaches a router for cutting material having a substantially cylindrical shaft member having a shank portion (3) and a first and second helix, as set forth in the above 102b rejection.

However, VAN DE BOGART fails to teach how the helixes are made (i.e. the grinding the first and second helixes).

Babbitt teaches developing a flute by grinding. Babbitt also teaches the tools produced by grinding have necessary cutting edges, clearances ('053, Col. 1, 25-40 and Col. 2, lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a grind-wheel to grind the helixes of VAN DE BOGART's , as taught by Babbitt because Babbitt teaches a normal flute grinding operation ('053, Col. 2, lines 1-7).

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van De Bogart (USP 4,480,949) in view of Babbitt (USP 2,923,053)

VAN DE BOGART teaches a router for cutting material having a substantially cylindrical shaft member having a shank portion (3) and a cutting portion having a plurality of cutting teeth. VAN DE BOGART also teaches a left hand (first helix) having plurality of cutting edges (2: second cutting edge) intersecting a right hand (second helix) having two cutting edges (1: first cutting edge) (i.e. there are more teeth along the first helix than the second as claimed in claim 26) ('949, figures 1 & 3 and Col. 1, lines 58-61) (Note, the left and right hand helix are reversed such that they read on claim 25).

However, VAN DE BOGART fails to teach how the helixes are made (i.e. the grinding the first and second helixes).

Babbitt teaches developing a flute by grinding. Babbitt also teaches the tools produced by grinding have necessary cutting edges, clearances ('053, Col. 1, 25-40 and Col. 2, lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a grind-wheel to grind the helixes of VAN DE BOGART's , as taught by Babbitt because Babbitt teaches a normal flute grinding operation ('053, Col. 2, lines 1-7).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara Addisu at (571) 272-6082. The examiner can normally be reached on 8:30 am - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on (571) 272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SA
12/29/05

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PRIMARY EXAMINER